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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/788,301	02/16/2001	Peter C. Sercel	ALG10NP	1500

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EXAMINER

LEE, JOHN D

ART UNIT PAPER NUMBER

2874

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/788,301

Applicant(s)

SERCEL ET AL.

Examiner

John D. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7, 17, 19-35 and 47-57 is/are allowed.
- 6) ☒ Claim(s) 8-10, 12-16, 18, 36-46, 58 and 59 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6, 5. 6) ☐ Other: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e) based on U.S. Provisional Applications 60/183,499 (filed February 17, 2000) and 60/226,147 (filed August 18, 2000).

The seventeen (17) sheets of formal drawing filed with this application on February 16, 2001, are acceptable.

The lengthy specification has not been checked to the extent necessary to determine the presence of *all* possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. The following errors have been noted, however. On page 12, in the "BRIEF DESCRIPTION OF THE DRAWINGS", the description for Figures **9C** and **9D** are missing; and on page 13, in the "BRIEF DESCRIPTION OF THE DRAWINGS", the description for Figure **22** should actually be for Figures **22A** and **22B**. Correction of these errors is required.

The abstract of the disclosure is objected to because it is too long. The Rules of Practice currently limit the abstract to a maximum of 150 words. Correction is required. See MPEP § 608.01(b).

The preliminary amendment filed on July 30, 2001, has been entered. Claims 1-59 are now pending in this application.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-10, 12, 43, 45, 46, 58, and 59 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,052,495 to Little et al in view of U.S. Patent 5,471,551 to Kragl et al. Little et al discloses a resonant optical modulator/switch/filter assembly for an optical communication (e.g. WDM) system, the essential components of the assembly comprising: a first transmission optical waveguide for transmitting optical signals in specified waveguide optical modes and having a side-coupling segment therein, a second transmission optical waveguide for transmitting optical signals in specified waveguide optical modes and having a side-coupling segment therein, and an optical cavity resonator positioned between the first and second transmission optical waveguides, optically side-coupled to the side-coupling segments of both the first and second transmission optical waveguides, and arranged for supporting a resonant optical mode. Although the word "evanescent" is not used in the Little et al Patent, it is clear that the side-coupling between the optical cavity resonator and each of the first and second transmission optical waveguides is, indeed, evanescent optical coupling, in which an evanescent portion of each optical mode extends transversely beyond the surface of the side-coupling segment. Little et al does not specifically show housing structure for the components of the resonant assembly, but it is quite obvious that some sort of housing structure must be present – desirably, a housing structure that accurately positions and holds the components in their specified coupling positions. Kragl et al, in an assembly for evanescently coupling optical waveguides to optical resonator elements, teaches the advantage of forming placement grooves in a housing structure for each of the elements to be evanescently coupled (i.e.

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the optical waveguides and the optical resonator elements). Such housing structure not only simplifies manufacture, but also ensures that all coupled elements are always positioned exactly as required – making an easily reproducible, stable coupling arrangement. Because of these advantages, and because some sort of housing structure must be present in Little et al, the person of ordinary skill in the art would have found it obvious to utilize the teachings of Kragl et al in the resonant assembly of Little et al. The incorporation of housing structure in Little et al which provides respective locating and positioning grooves for the optical cavity resonator, the first transmission optical waveguide, and the second transmission optical waveguide would thus have been obvious. The basic resonant optical modulator/switch/filter assembly of Little et al could obviously be adapted to perform a number of communication functions, including WDM slicing/interleaving and optical channel adding/dropping. Note that in the operation of the Little et al assembly, an optical signal entering through one of the first and second transmission optical waveguides and being substantially resonant with at least one of the resonant optical modes of the optical cavity resonator is substantially transferred from one to the other of the first and second transmission optical waveguides. Conversely, an optical signal entering through one of the first and second transmission optical waveguides and being substantially non-resonant with any of the resonant optical modes of the optical cavity resonator substantially remains within the one of the first and second transmission optical waveguides. Since the Little et al assembly is not dependent on waveguide type or mode type, the use of different kinds of optical waveguides therein (e.g. polarization-preserving fiber optic waveguides, side-

etched fiber optic waveguides, etc.) would have been obvious to the person of ordinary skill.

Claims 13-16, 18, 36-42, and 44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's admitted prior art in view of U.S. Patent 5,471,551 to Kragl et al. Each of these claims is written in a "Jepson" format in which a long preamble is followed by "the improvement comprising...". It is established law that the preamble elements in a Jepson-type claim are impliedly admitted to be old in the art (*In re Ehrreich*, 590 F.2d 902, 200 USPQ 504 (CCPA 1979), *Sjolund v. Musland*, 847 F.2d 1573, 6 USPQ2d 2020 (Fed. Cir. 1988), *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 227 USPQ 766 (Fed. Cir. 1985), and *Reading & Bates Construction Co. v. Baker Energy Resources Corp.*, 748 F.2d 645, 223 USPQ 1168 (Fed. Cir. 1984). This is only an *implied* admission, however, and may be overcome by appropriate rebuttal evidence from the applicant (see MPEP § 2129). Applicant's "improvement" in each of these claims is the provision of precision grooved housing structure for the components of the resonant assembly, namely the transmission optical waveguides and the optical resonator, thus allowing for an easily reproducible, stable coupling arrangement. Kragl et al, however, in an assembly for evanescently coupling optical waveguides to optical resonator elements, teaches the advantage of forming placement grooves in a housing structure for each of the elements to be evanescently coupled (i.e. the optical waveguides and the optical resonator elements). Such housing structure not only simplifies manufacture, but also ensures that all coupled elements are always positioned exactly as required – making an easily reproducible, stable coupling

arrangement. Because of these advantages, the person of ordinary skill in the art would have found it obvious to utilize the teachings of Kragl et al in the resonant assemblies of applicant's admitted prior art. The incorporation of housing structure in such admitted prior art which provides respective locating and positioning grooves for the optical cavity resonator, the first transmission optical waveguide, and the second transmission optical waveguide would thus have been obvious.

Claims 1-7, 17, 19-35, and 47-57 are allowed. These claims, which are **not** in the "Jepson" format, recite combinations of elements which would not have been obvious in view of Little et al, Kragl et al, or any other prior art of record. Note, for example, that Little et al does not disclose or suggest a separate modulator element in addition to the resonator element. Note also that neither Little et al nor Kragl et al disclose or suggest fiber-optic-tapered evanescent coupling segments or the wrapping of fiber-optic segments around the resonator element.

For the same reason, claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited U.S. Patent to Sadot et al shows another tunable optical filter for use in optical communications systems comprising first and second optical transmission waveguides and a ring resonator optically coupled therebetween. Other related disclosures of the applicant can be seen in the cited U.S. Patent Application Publications to Sercel et al and Vahala et al. The cited U.S. Patent to Zhao

et al describes the use of grooves for accurate placement of evanescently coupled optical waveguides and related elements, but the date of this Patent disqualifies its use as a reference against the claims of the present application.

All of the prior art documents submitted by applicant in the Information Disclosure Statement filed on October 10, 2002, including the U.S. Patent to Kragl et al relied on in the rejections above, have been considered and made of record (note the attached copy of form PTO-1449). The pending U.S. Patent Applications have been lined through on form PTO-1449 since they do not represent *citable* prior art documents.


This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. §§ 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (703) 308-4886. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (703) 308-0956, to the



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technical support staff supervisor (Team 2) at telephone number (703) 308-3072, or to the Technology Center 2800 Customer Service Office at telephone number (703) 306-3329.

  
**John D. Lee**  
**Primary Patent Examiner**  
**Group Art Unit 2874**